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PATENT

AMENDMENT AFTER FINAL REJECTION
EXPEDITED PROCEDURE EXAMINING GROUP 1600

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Nicole BARIE et al.

Group Art Unit: 1641

Serial No.: 09/694,241

Examiner: Kartic Padmanabhan

Filed: October 23, 2000

For: DEXTRAN-COATED SURFACE

REQUEST FOR RECONSIDERATION

MAIL STOP AF

Commissioner for Patents

P. O. Box 1450

Alexandria, Virginia 22313-1450

Sir:

Applicants request reconsideration of the rejections in the Final Rejection mailed June 13, 2003 in view of the following remarks.

The claims before the Examiner are claims 1, 3, and 5 to 15.

The rejection of claims 1, 3, 5, 6, and 11 under 35 USC 103 as unpatentable over Swan et al. '056 or Hubbell et al. '914 in view of Chai-Gao et al. '802 is respectfully traversed.

The claimed subject matter is directed to a dextran-coated surface formed in a manner represented by instant Fig. 1. There one can see a substrate, more particularly, a polyimide having dextran attached thereto through the intermediary of a TRIMID-modified protein; in the figure, the protein is BSA making the intermediary T-BSA. Applicants respectfully submit that the references in combination do not teach or suggest the invention claimed herein. Indeed, applicants respectfully submit that the references are improperly combined and that no prima facie case of obviousness has been made out.

Swan et al. '056 without question is directed to various crosslinked matrices having covalently immobilized chemical species and unbound releasable chemical species to provide release of one of those chemical species from the matrix. The matrix is a three-dimensional one so it may achieve the intended purposes of the Swan et al. '056 invention. The matrix is not a conventional substrate as depicted in applicants' Fig. 1. The matrix of the reference is a self-contained unit; see, for example, the last sentence of the Abstract and column 8, lines 56 to 65.

The reference discloses as an example of the first or second chemical species (which may also be regarded as the immobilized (bound) or unbound species) dextran sulfate (see the next-to-last subparagraph of patent claim 12) and lists various materials including organic polymers (see the last subparagraph of patent claim 12) as coupling compounds. There is no disclosure in the reference of the use of a protein, modified or not, as a coupling compound and there is no mention in the reference of dextran alone as a material to be connected. The last line of column 7 of the patent indicates that dextran sulfate is a carbohydrate useful for chromatography media. The patent further contains a discussion of using dextran sulfate as a chemical specie in combination with a coupling compound to bring those materials into "association permitting ionic attraction between them to pre-orient the chemical specie and the polymeric coupling compound with respect to each other before they are covalently bonded"; see column 9, line 66 to column 10, line 4. Patent Example 12 (see columns 16 and 17) shows dextran sulfate (not dextran) co-immobilized onto polystyrene beads using a photoderivatized polyacrylamide made in Example 5 and a polyionic polymeric coupling compound made in Example 11. The

connecting agent (the coupling compound) unquestionably is organic polymer based. Proteins, modified or not, are not disclosed as coupling compounds.

The Examiner asserts in the first paragraph on page 3 of the Final Rejection that Swan et al. '056 discloses dextran as the polymer from which the "coupling compound" is derived. Dextran is not the "coupling compound" in the context of the present invention. The lack of Swan et al. '056's pertinence to the present invention is proven by the Examiner's remark. Swan et al. '056 is not related to the present invention.

Hubbell et al. '914 discloses ways to form biocompatible membranes around biological materials by the use of water-soluble molecules which are photopolymerized. For purposes of polymerization, the invention described in the reference uses materials called "macromers," which are described in detail at column 11 of the document. Listed as a macromer example are "ethylenically unsaturated derivatives" of dextran. Thus, the reference itself has no awareness, discussion, recognition, or understanding of using dextran itself as a material which is to be linked to a substrate. The only way in which dextran can be

utilized for purposes of the Hubbell et al. '914 invention is as the central portion of an ethylenically unsaturated derivative of dextran. The reference also contains no mention of a protein, modified or otherwise, as a linker and the reference is believed not properly applicable here. Not only is the dextran used in Hubbell et al. '914 not dextran itself (rather the dextran is the central portion of an ethylenically unsaturated derivative of dextran), the Hubbell et al. '914 "dextran" is a "coupling component" rather than a material to be coupled. See the similar remarks above regarding the Examiner's discussion of dextran as a "coupling component" in the Swan et al. '056 invention.

The deficiencies of Swan et al. '056 and Hubbell et al. '914 are not overcome by the disclosure in Chai-Gao et al. '802. While the reference does refer to BSA and TRIMID, there is no example, let alone discussion in the reference, of using TRIMID-modified proteins and particularly TRIMID modified BSA as a co-immobilizer for dextran to a substrate. Chai-Gao et al. '802 has no mention of dextran and there is no proper reason to combine these references.

Applicants further respectfully submit that the rationale advanced in the paragraph bridging pages 3 and 4 of the Final

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Rejection establishes that the Examiner has used hindsight to try to justify the rejection. There is no "reasonable expectation of success" because there is no proper reason drawn from the references themselves for their combination. And, even when combined, the present invention does not result. The rejection should be withdrawn.

The rejection of claims 1, 3, and 5 to 15 under 35 USC 103 as unpatentable over Swan et al. '056 or Hubbell et al. '914 in view of Wessa et al. WO '631 is also respectfully traversed.

The deficiencies of Swan et al. '056 and Hubbell et al. '914 have been discussed above and will not be repeated here. Applicants respectfully submit that Wessa et al. WO '631 does not make up for the deficiencies of the primary references. The secondary reference here describes a prior art technique involving TRIMID and T-BSA but the reference in no proper fashion teaches or suggests the subject matter of the claims. The rejection should be withdrawn as well.

Wessa et al. WO '631, which as the instant case has Dr. Hans Sigrist as a joint inventor, describes a prior art technique of covalently-linked (therefore not diffusible) carbene mediated

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immobilization of a biomolecule to a polyimide. The discussion taken with either Swan et al. '056 or Hubbell et al. '914 does not direct the person of ordinary skill in the art to the invention claimed here.

Applicants respectfully submit that the statements in the first paragraph on page 5 of the Final Rejection establish that hindsight was used in this rejection as well. The rationales advanced come not from the cited art but from an attempt to justify a rejection improperly made.

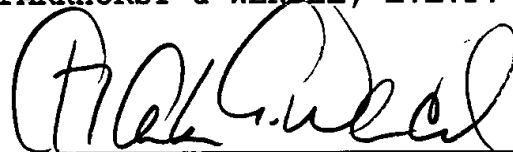
Applicants thank the Examiner for the detailed Response to Arguments on pages 5 to 7 of the Final Rejection. Applicants respectfully submit that the references in combination do not properly teach or suggest the subject matter claimed here (as explained above, the references are not properly combinable) and all rejections should be withdrawn.

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If, after review of the following remarks, the Examiner is of the view that changes are required in the case prior to allowance, he is asked to contact the undersigned.

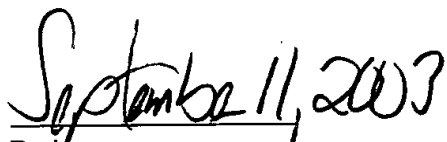
Respectfully submitted,

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